



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMPTROLLER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,566	09/22/2000	Takafumi Nakamura	197689US2	9678

22850                      7590                      12/26/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC  
FOURTH FLOOR  
1755 JEFFERSON DAVIS HIGHWAY  
ARLINGTON, VA 22202

EXAMINER

DI GRAZIO, JEANNE A

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 12/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/667,566

Examiner

Jeanne A. Di Grazio

Applicant(s)

NAKAMURA ET AL.

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Response to Restriction Requirement***

In response to the Restriction Requirement dated October 16, 2002, Applicant provisionally elects Group II, Claims 7-12 without traverse, drawn to a flat display including a substrate array classified in class 349, subclass 39.

Claims 7-12 are thus examined in this Office Action.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baron (USPN 4,728,175) in view of Yamamoto et al. (USPN 6,088,071).

Per claim 7: Signal lines and scanning lines longitudinally and transversely arranged on an insulating substrate are common in the art. Pixel electrodes connected to respective intersections of signal and scanning lines via switching elements are common in the art. Baron has auxiliary capacity electrodes connected to switching elements through pixels (Col. 4, Lines 3-11 and Lines 18-20). Baron has an insulating layer and interconnect connected to an auxiliary capacity electrode (Fig. 15). Baron has a second insulating layer and interconnect connected to switching elements ("isolation devices" and address lines) and the first insulating layer (Fig. 15). Baron has a third insulating layer connected to a first electrode portion and connected to a pixel electrode

and switching elements (Fig. 15). In Baron, the first and second insulating layers with interconnects are formed on different layers with the direction "vertical" being interpreted broadly.

Baron does not appear to have an auxiliary capacitor feeder opposite to an auxiliary capacity electrode via an insulating layer; however, Yamamoto et al. does have an auxiliary capacitor with a lower electrode and an insulating layer on the lower electrode (Col. 6, Lines 52-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Baron in view of Yamamoto for improved aperture ratio and thus for good display characteristics.

Per claim 8: Baron does not appear to have a second wiring layer and an auxiliary capacity feeder formed not to be vertically superposed onto each other; however, Yamamoto has an auxiliary capacitor not vertically superposed with a scanning line (Fig. 13 and Col. 5, Lines 50-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Baron in view of Yamamoto for improved aperture.

Per claim 9: Baron has a first insulating layer formed on the same layer as an auxiliary capacity electrode (Fig. 15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include such an element for a reduction in process steps and for ease of forming pixel electrodes along with auxiliary capacity electrodes.

Per claim 10: Baron has multiple layers having auxiliary capacity electrodes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include second and third wiring layers on the same layer as that of an upper electrode to reduce the number of process steps, improve aperture ratio, and improve display quality.

Per claim 11: Baron does not appear to have lengths of first and second wiring layers set equal to each other, although they may be equal. However, Yamamoto discloses the importance of channel length in the context of the auxiliary capacitor and electrode length for fast response speed of the auxiliary capacitor (Col. 4, Lines 13-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set first and second wiring lengths equal to each other for fast response speed and thus improved display characteristics.

Per claim 12: Applicant claims a channel area of the switching element, auxiliary capacity electrode, and first wiring layer all formed of polycrystalline silicon. Polycrystalline silicon is commonly used in the art for switching devices and it would have been obvious to one of ordinary skill in the art at the time the invention was made to form all of the above elements of the same material for a reduction in the number of materials needed for making the device, reduced cost, and reduced number of mask steps.

Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

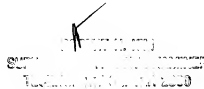
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert H. Kim, SPE

JDG

December 16, 2002

A handwritten signature, possibly "Kim", is written over a rectangular stamp. The stamp contains some illegible text, likely a date or administrative marking.